

## Claims

[c1] 1. An adaptive frequency shift key decoding method, comprising:

sampling a demodulated frequency shift key signal at a predetermined sampling rate to obtain a plurality of sample points;

inputting values of said plurality of sample points in sequence to a sample group;

comparing the values of at least a pair of said plurality of sample points, said pair of said plurality of sample points being symmetrical to a central point of said sample group;

obtaining a sample correcting number when the value of said pair of said plurality of sample points are different;

comparing a central value with the value of one of said pair of said plurality of sample points when the values of said pair of said plurality of sample points are different , to obtain a sample correcting direction; and

selecting the desired sample points from said plurality of sample points responsive to said sample correcting number and said sample correcting direction, wherein said central value is the value of any sample point within predetermined points of said central point.

[c2] 2. The adaptive frequency shift key decoding method of claim 1, wherein said step of comparing a central value with the value of one of said pair of said plurality of sample points further comprises:

determining said sample correcting direction as backward when the value of the first sample point of said pair of said plurality of sample points is different from said central value, wherein the first sample point is before said central point;

determining said sample correcting direction as backward when the value of the second sample point of said pair of said plurality of sample points is the same as said central value, wherein the second sample point is after said central point;

determining said sample correcting direction as forward when the value of the first sample point is the same as said central value; and

determining said sample correcting direction as forward when the value of the second sample point is different from said central value.

[c3] 3. The adaptive frequency shift key decoding method of claim 1, further comprising selecting the desired sample points from said sample group responsive to said sample correcting number and said sample correcting direction.

[c4] 4. The adaptive frequency shift key decoding method of claim 3, wherein said selecting step further comprises: responsive to said sample correcting direction as backward, shifting backward according to said sample correcting number to select the desired sample points; and responsive to said sample correcting direction as forward, shifting forward according to said sample correcting number to select the desired sample points.

[c5] 5. The adaptive frequency shift key decoding method of claim 1, further comprising:  
responsive to said sample correcting direction as forward, inputting the values of a reduced number of said plurality of sample points to said sample group, wherein said reduced number is equal to the amount of said plurality of sample points minus said sample correcting number; and  
responsive to said sample correcting direction as backward, inputting the values of a increased number of said plurality of sample points to said sample group, wherein said increased number is equal to the amount of said plurality of sample points plus said sample correcting number.

[c6] 6. The adaptive frequency shift key decoding method of claim 1, further comprising:  
comparing the value of a plurality of pairs of said plural-

ity of sample points; and  
outputting the data according to the majority result of  
said step of comparing the value of a plurality of pairs of  
said plurality of sample points.

[c7] 7. An apparatus for adaptively decoding frequency shift key signals, comprising:  
a shift register, for receiving and storing a plurality of sample points;  
decoding means, coupled to said shift register, for outputting a shift control signal and a sample point control signal by comparing a central value with the value of one pair of said plurality of sample points when the values of said pair of said plurality of sample points are different;  
and  
a multiplexer, coupled to said shift register and said decoding means, for selecting the desired sample points from said plurality of sample points responsive to said sample point control signal.

[c8] 8. The apparatus of claim 7, further comprising a buffer coupled to the shift register and the decoding means, for receiving the plurality of sample points by sampling a demodulated frequency shift key signal at a predetermined sampling rate, and then transmitting the sample points to the shift register.

- [c9] 9. The apparatus of claim 7, wherein said pair of said plurality of sample points being symmetrical to a central point of said group.
- [c10] 10. The apparatus of claim 7, wherein said central value is the value of any sample within a predetermined points of said central point, and said buffer changes the amount of sample points responsive to said shift control signal.